User manual of U-Prox proximity readers

U-Prox KeyPad

U-Prox mini

Function

U-Prox proximity readers is intended to be applied in different access control systems, using RS232, Touch-memory, Wiegand 26, Wiegand 37 or Wiegand 42 interface. (Reader U-Prox KeyPad have built-in keypad).

Types of identificators

Integrated Technical Vision Ltd manufactures readers operating with amplitude (ASK) and frequency (FSK) modulation proximity cards and tags.

Design

The reader is placed in miniature hermetic plastic case. Thanks to the small overall dimensions the reader is distinguished for its advanced reliability.

Specifications

Warm-up time 10 seconds after power start

Case

Material ABS plastic

Dimensions

	U-Prox KeyPad	U-Prox mini
mm	120x65x17,5	80x45x13,5

Weight

	U-Prox KeyPad	U-Prox mini
gramm	240	70

Ambient Conditions

	U-Prox mini	U-Prox KeyPad
Temperature	-35 . . . +60^{0}C	0 . . . +55 ^{0}C
Humidity	100% (without condensate)	

Power supply

	U-Prox mini	U-Prox KeyPad
Voltage	+4.75. . . +16 V of direct current	+9. . . +16 V of direct current
Current	up to 30 mA	up to 40 mA
Maximal current	up to 60 mA	up to 75 mA
Voltage ripple	up to 500 mV	

Distance of reading

Typical reading distance show in table 1 and depends on tag type used with it. This parameter is valid for power supply voltage range from +9 to +16 VDC and ripple up to 150 mV_{p-p}.

Table. 1

	U-Prox mini	U-Prox KeyPad
Distance, mm	100-120	100-120

Wiring

Table. 2

	W2/W3/W4/ WS	RS232	Touch-Memory
Color	Function		
Green	Data 0	Rx	iButton
White	Data 1	Tx	-
Red	+V	+V	+V
Black	GND	GND	GND
Brown	Red Led	–	Red Led
Orange	Green Led	–	Green Led
Blue	Beep	–	Beep
Yellow	Hold/Synch	Hold/Synch	Hold/Synch

Reader has 8-wire colored cable intended for connection to access control panel.
Table 2. The wires assignment:
Multiwire signal cable with 0.22 mm^2 wires' cross-sectional is recommended to use for connection of the reader and control panel. Using this cable the maximum length of 100 (30 for Touch-Memory) meters can be obtained.

Type of interfaces

The proximity reader is intended to be applied in different access control systems, using RS232, Touch-memory, Wiegand 26, Wiegand 37, Wiegand 42.

Mounting

It is recommended to mount the reader on a wall closely to a door at appropriate height.

! Do not mount the reader on metal surface, since it causes decreasing of reading distance.

! If two readers are mounted at a distance less than 50sm, reading distance of a card may be reduced appreciably. In such a case, connect yellow wires of the readers. The readers will synchronize and work in turn.

! Synchronization allows mounting of two readers at a small distance, to the extent of reading distance of a card. In case that, two readers are mounted at a distance less than reading distance of a card the card may be read by the reader behind the wall.

To mount the U-Pox KeyPad, U-Pox mini readers proceeds as follows:
- Remove the boot in the bottom part of the reader with loosing the screw
- Push mounting panel towards the screw and remove it from the reader
- Using the mounting panel as a template mark and then drill two openings 6mm in diameter and 35mm deep
- Pass the wire through central opening
- Secure the mounting plate on a wall using plastic nailing plugs and screws
- Connect the reader to the control panel's cable
- Put on the reader on the mounting plate, push the case down against stop and secure the reader with the screw
- Put on the boot

The Reader Operation

Reading of identificator code

The code reading is annunciated by built-in buzzer and two-color LED according to interface type and annunciation mode (refer to «Data transfer and Annunciation»). Repeated reading will be available after 0.8 sec if the identificator is moved away from the reader sensing area.

Hold Mode

Reader is turned to the hold mode while yellow wire is closed to the ground. In this mode reader does not read cards, thus current consumption decreases to 30mA.

! Do not apply voltage to hold outlet!

Data transfer and Annunciation

While reading card code the reader produces a short sound signal and switches green LED for a short time. This confirms that the card code has been read successfully, but is not related to the rights of the card within the system (E.g. right to enter)

Green or Red Led and buzzer are used by controller to indicate the decision made by the system with respect to the presented card.

To switch a green LED on valid card entry connect Brown wire(Red LED)

And Orange wire (Green LED) together to negative LED output of the Controller.

Wiegand Interface

Engaging of LED and buzzer is possible automatically or by closing of corresponding wire to the black wire (GND) according to Table 3.

Table 3. Annunciation mode:

x	Buzzer	Red LED	Gren LED
00	Beep on card read	Normally ON, switched OFF at reading	Blinks at reading
01	Outside control	Normally ON, switched OFF at reading	Blinks at reading
02	Beep on card read	Switched OFF	Blinks at reading
03	Outside control	Switched OFF	Blinks at reading
04	Beep on card read	Normally ON, switched OFF at reading	Outside control
05	Outside control	Normally ON, switched OFF at reading	Outside control
06	Beep on card read	Outside control	Outside control
07	Outside control	Outside control	Outside control
08	Beep on card read. Availability to switch ON from outside	Normally ON, switched OFF at reading. Availability to switch OFF from outside	Blinks at reading. Availability to switch ON from outside

Data transmissions from reader comply with the standard specified.

RS232 interface

To control annunciation send three-byte control packet to the reader. Packets should be transmitted with 2 400 bits per second, 8 bit data, no parity, 1 stop bit.

Packet format:

Bit	7	6	5	4	3	2	1	0
byte 0	0	1	0	0	1	0	0	1
byte 1	-	-	red blinks	-	red steady	-	-	-
byte 2	green steady	-	green blinks	-	-	buzzer pulsatory	-	buzzer uninterruptedly

1 – corresponds to LED or buzzer switching on. LED blinking and buzzer pulsatory control bits have the highest priority.

Annunciation does not change until next control packet is received.

Reader transmits data as follows:

byte #	0	1…10	11	12
Card read	23h	data	C sum	0D h
PIN entered	21h	data	C sum	0D h

data:

Bit	7	6	5	4	3	2	1	0
Destination	0	0	1	1	X	X	X	X

Checksum: exclusive OR of low nibbles of bytes from 1 to 10, high nibble of always must be 3h.

Example: Card code 7E000460AA will be sent as:

23h, 37h, 3Eh, 30h, 30h, 30h, 34h, 36h, 30h, 3Ah, 3Ah, 3Bh, 0Dh.

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